

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
30 June 2005 (30.06.2005)

PCT

(10) International Publication Number
WO 2005/059477 A3

(51) International Patent Classification⁷: **B65G 11/00**

(21) International Application Number:
PCT/US2004/042099

(22) International Filing Date:
16 December 2004 (16.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/530,376 17 December 2003 (17.12.2003) US

(71) Applicant (for all designated States except US): **MOVA
PHARMACEUTICAL CORP.** [US/US]; State Road No.
1, R/Km. 34.8, Zona Parque Industrial Villa Blanca, Zafiro
Street (Final), Caguas, 00725 (PR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **NIEVES-VAZQUEZ,**

Enrique, Dr. [US/US]; Urb. San Francisco, 1675 Calle
Lilas, San Juan, 00927 (PR).

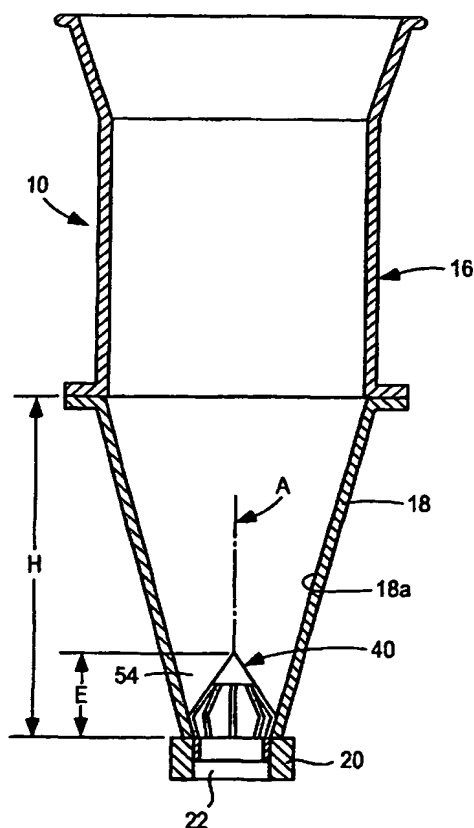
(74) Agents: **REA, Teresa, Stanek et al.; BURNS, DOANE,
SWECKER & MATHIS, LLP**, PO BOX 1404, Alexandria,
Virginia 22313-1404 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,
ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: **HOPPER WITH FLOW CONTROLLER/ENHANCER FOR CONTROLLING THE GRAVITATIONAL FLOW OF
GRANULAR MATERIAL**



(57) Abstract: A hopper assembly for feeding granular material, such as pharmaceutical powder, includes a hopper having an upper inlet and a lower outlet defining a substantially vertical center axis, and a flow controller/enhancer disposed in the hopper adjacent the outlet. The flow controller/enhancer includes a deflector element disposed in the hopper above the outlet. The deflector element is of generally conical shape with an apex thereof directed upwardly in substantial alignment with the vertical center axis. An outer peripheral edge of the deflector element is spaced inwardly from an inner surface of the hopper to define a space therebetween where gravitating granular material deflected outwardly by the deflector element flows downwardly past the deflector element toward the outlet.

WO 2005/059477 A3



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:
29 September 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*